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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/564,842 | 01/11/2006 | Jia-Ni Chu | W9643-02 | 3234 |
| 7590 | 09/08/2008 | | EXAMINER | |
| William D Bunch | | MARCHESCIL MICHAEL A | | |
| W R Grace & Company Conn | | | ART UNIT | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--|-----------------------------------|
| Office Action Summary | Application No. 10/564,842 | Applicant(s) CHU ET AL. |
| | Examiner Michael A. Marcheschi | Art Unit 1793 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 July 2008.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-7,11-14 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-7,11-14 and 17-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/06)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application (PTC-152)
 6) Other: _____

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Applicants are reminded that claim 23 appeared in the claim pages dated 11/20/06 and is not included in the claim pages of the instant amendment (dated 7/9/08), thus it is presumed that this claim is canceled. Applicants are reminded that the amendments to the claims defined in the claim pages must include **all** claim numbers, even though canceled.

Claims 1-7, 11-14 and 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-7, 11-14 and 17-20 are indefinite as to the limitations "median particle size, **by volume**," and "a span value, **by volume**," because the examiner is unclear as to what the volume is (in terms of an amount (i.e. percentage)), thus rendering the scope of the claims unclear.

Claims 1-7, 11-14 and 17-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over (1) WO 01/98201 or (2) 6,527,817 (Fang et al.).

The WO reference teaches in the abstract and on page 2, line 29-page 4, line 9, a polishing composition and polishing method, said composition comprises abrasive particles (colloidal silica) having a poly dispersed particle size distribution and water. The standard deviation of the particles is also defined.

Fang et al. teaches in the abstract and column 2, line 62-column 4, line 2, a polishing composition and polishing method, said composition comprises 10-95 weight percent, based on the solids of abrasive particles (colloidal silica), wherein the abrasive particles have a poly dispersed particle size distribution and water. The standard deviation of the particles is also defined.

All of the references teach polishing compositions and polishing method, wherein the polishing composition comprises abrasive particles (colloidal silica) having a poly dispersed particle sizes distribution (size less than 100 nm). The size values of the references read on the claimed size of 20-100 nanometers, thus the claimed size is anticipated by the reference. With respect to the claimed span value, although the limitation “span value” is not literally defined, the broad disclosure of (1) the standard deviation and (2) the breath of the reference distributions anticipate this limitation. With respect to the fraction of particles having the claimed maximum size (100 nm), all of the references teach abrasives which have a size less than 100 nm, thus the reference do not have to have sizes over 100 nm and therefore the fraction of particles can be zero (within the claimed range of “less than”).

In the alternative, no patentable distinction is seen to exist because the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

Applicant's arguments filed 7/9/08 have been fully considered but they are not persuasive.

With respect to the indefinite rejection above, applicants argue that "by volume" indicates that the span values or particle sizes are measured by counting the volume of the particles and not the number of the particles. The examiner is unclear as to this and thus this argument is not persuasive because how can you count the volume of a particle because volume is the cubic value and the claimed invention is in nm. At most, it would appear that applicants would be counting the particles in a volume relationship (frequency), although the claims do not clearly specify this and thus this type of limitation is not being considered in the claims as written, however, when one counts the particles, the number of the particles in that relationship are counted, thus it would clearly be apparent that applicants are counting the **number** of particles present in a specified volume.

With respect to the art rejections, applicants argue that the references do not disclose the span value. This is not persuasive because the span value defined by the instant invention is the "breath of the distribution" (distribution is of 20-100 nm) and the claims define the span as being greater than 15nm or even greater than 20 nm. As is apparent from the references, the size distribution of the abrasive particles is 25-100 nm (references teach the lower limit of 25 nm as is apparent from the WO reference on page 3, line 26 and in Fang (817) in column 3, line 30), thus as can be seen from the distribution of the references (distribution is 25-100 nm-this distribution has a breath of 100nm-25nm=75 nm), the span or breath of the distribution, as implied by the distribution of the references, can be a value of greater than or equal to 15 or 20 and applicants show no clear evidence to the contrary that a difference clearly exists.

Applicants present arguments that (1) the “distribution by number can be significantly different than the distribution by volume” and state that (2) one large particle would affect the distribution by volume but not by number. With respect to (1) above, although this may be true, applicants are not claiming a distribution by volume, but rather a “distribution with a median particle size by volume” and in the instant claims, the term “volume” is used to modify the median particle size and not the distribution, thus any arguments about the distribution by volume is not correct in view of the claims as drafted. In view of this, applicants are arguing limitations not claimed. With respect to (2) above, again applicants are not claiming a distribution by volume (at least, the claim does not clearly and specifically define this) and the last limitation of the instant claims do not exclude any large particles and furthermore applicants have not shown any evidence as to what they consider to be a large particle nor evidence that the references in fact contain large particles in the distribution. The examiner acknowledges that when percentage values are defined, the correlation between number and volume might be difficult to calculated since varying factors are needed (i.e. (depending on the size and density of the silica), however, applicants are not claiming any percentage values for the "median particle size" or "the span value". It is to be noted that the "by number" limitation defined by the references is referring to the percentage values define therein and not to the particle sizes themselves. In view of applicants arguments, they state that the references do not anticipate the claimed invention in view of the missing descriptive elements (i.e. apparently the span value). It is well understood that anticipation can be made if this would be an inherent feature in the references and as clearly established above, said span value is inherent to the distribution defined by the references. Again, applicants continue to argue that the references do not teach a particle

size distribution defined by volume. As clearly pointed out above, the claims are not claiming a distribution by volume but rather a median particle size by volume. It would appear that applicants wording of the instant claims is not consistent with applicants arguments. The only percentage value defined by the claimed invention is that particles having a size greater than about 100 nm is present in an amount of less than or equal to a certain percent by volume. This is not a clear distribution by volume. The fact that all the references teach abrasive particles (colloidal silica in both references) which have a size between 25-100 nm reads on the above limitation because the references do not have any median size over 100 nm and therefore the fraction of particles can be zero (within the claimed range of "less than"). In addition, the size distribution of the references must contain a volume of sizes and burden is upon applicants to show clear evidence as to why the distribution of the references would not constitute particles in the claimed relationship. Applicants have not clearly met this burden imposed upon them especially since the examiner has clearly defined reasons why the references teach the claimed distribution.

In the alternative rejection, applicants argue that that since the span value is not disclosed by the references, the examiner has failed to meet the burden of showing a prima facie case of obviousness. This examiner disagrees and specifically set forth reasons above why the claimed span value is met and now burden shifts to applicants to show evidence otherwise and this burden has not been met by applicants. Just because a reference might not literally define the claimed specific limitation does not exclude a rejection from being made if it can be clearly established why this limitation is inherent or suggested by other features in the reference. The

examiner has clearly established reasons why the claimed "span value" is met and now applicants must show reasons to the contrary.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In summary, it is the examiners position that since no percentage values are defined and since the references all teach the exact claimed particle size distribution, a volume must inherently be associated therewith. The only specific volume percent value defined is for the particles above 100 nm and since the references are void of this size, the volume percent is zero which, reads on the claimed range.

The examiner also made a judgment that "the size distribution of the references must contain a volume of sizes and burden is upon applicants to show clear evidence as to why the distribution of the references would not constitute particles in the claimed volume relationship. It is the examiners position that from the data of the percentages for the individual abrasives, volume percents can be determined (depending on the size and density of the silica used which would appear to be the same), and this appears to encompass the claimed values. Applicants have not provided any clear evidence establishing that the claimed volume relationship is patentable over the number relationship of these references. Finally, the distribution of the

references must have some volume associated therewith and applicants have not shown clear evidence as to why the distribution of the references will not meet the claimed volume limitation. Since all the particles of the references have the same size as the claimed invention, the volume must also be the same absent evidence to the contrary and since applicants do not define any numerical values for the volume". It is to be noted that applicants have failed to provide evidence rebutting this line of argument and thus no patentable distinction is seen to exist.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793

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|---|--------------------------------|--|
| Application Number  | Application/Control No. | Applicant(s)/Patent under Reexamination |
| | 10/564,842 | CHU ET AL. |
| | Examiner | Art Unit |
| | Michael A. Marcheschi | 1793 |